Netspeak standards: measuring the quantity within the closed asynchronous discussions

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Abstract: - Rapid development of new technology and everyday use of new forms of communication like MSN, Skype, Facebook, SMS, etc. in various ways affect and change the language in order to create a new language form - Netspeak. The use of Netspeak erases the boundary between written language and spoken language. Thanks to universally recognized symbols Netspeak is becoming globalised form so perhaps the attempt once tried with Esperanto begins to live with Netspeak. In order to measure the amount of Netspeak elements, 10 standards have been developed that can be divided into four groups: standards related to information and communication technology (ICT), grammar and spelling (G), prosody (P) and others (O). In this paper the authors measure the amount of Netspeak elements in online asynchronous discussions within the course Information and Communication Technologies (ICT) taught in the first semester at the Zagreb School of Economics and Management (ZSEM). The research is conducted among four different generations of students. The results show that the amount of Netspeak elements is higher in student-student discussions which are less formal than the professor-student discussions which are more formal. Similar results were demonstrated by measuring the density of Netspeak depending on the number of characters in the discussion. Furthermore, students who more frequently use Netspeak elements in the professor-student discussions will use more frequently Netspeak elements in the student-student discussion, too.

Key-Words: - asynchronous discussion, Netspeak standards, Information and Communication Technologies, e-learning, professor-student discussion, student-student discussion

1 Introduction

The online discussions are main components of each e-learning system. [1]-[6] The role of the student in the discussions is triple: it might be an active participant writing posts, passive participant just reading, not writing posts and completely passive role nor writing or reading posts. [7] In the research conducted by Aleksic-Maslac etc. the open and closed discussions are defined (Figure 1). [8] Open discussions allow constant communication on non-lecture topics; they are informal, and not related to the lessons. It might be the discussion professor-student (P-S), student-professor (S-P) and student-student (S-S). Closed discussions are strictly tied to the lecture topics and class lessons and might be professor-student (P-S) and student-student (S-S). Discussion student-student (S-S) might be *elementary*, the one in which one student is a moderator and the others participate actively, as well as *project group* in which the students communicate with each other divided into smaller virtual classrooms. [9, 10]

This paper analyzes the use of Netspeak in the closed discussions within the Information and Communication Technologies course [11] taught at Zagreb School of Economics and Management. [12, 13]. The course is taught in the 1st semester of the undergraduate program. This course was chosen because of its highly developed online asynchronous discussion, and because it is regularly found on the top list in the evaluation of online courses developed in the Learning Management System (LMS) [14, 15]. To measure the quality of the developed e-learning courses, 11 standards have been developed and divided into static, dynamic and administrator ones [16]. Online discussions are part of dynamic standards.

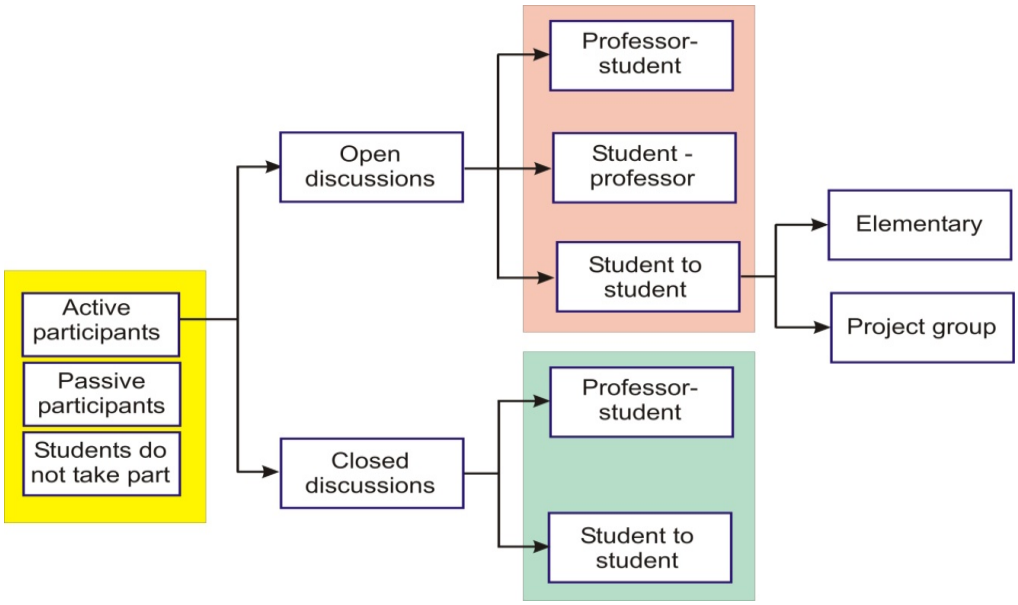

Fig. 1. Discussion types

2 Standards for measuring the quantity of Netspeak

Parallel with the fast development of the new technologies, the new language form is being developed too [17, 18], the so called Netspeak [19, 20]. The paper „Standards for measuring the Netspeak quantity in on-line text content" identifies and determines ten standards for measuring the quantity of Netspeak elements [21]. The Table 1 shows the standards for measuring the quantity of Netspeak elements grouped into four categories:

1. ICT standards (I1, I2, I3) – related to the use of English words in the Croatian language, the use of abbreviations, acronyms and emoticons.
2. Grammar and syntax (G1, G2, G3) – related to the extended use of lower cases through the whole text regardless the punctuation and proper names, the omission of diacritics and the omission of space after punctuation.
3. Prosody standards (P1, P2, P3) – the nonstandard use of punctuation, the use of upper cases when lower cases are needed and the prolongation of the graphemes.
4. Other – all other elements that can appear in the discussions and within other communication channels, such as social media.

Table 1 shows the ten standards and its description [21] the value of each standard is 10% and is the same for each standard.

Table 1. Netspeak elements quantity measuring standards

STANDARD	DESCRIPTION	P
I1 – English words	New technologies development is based on English language so it happens that Croatian language is subjected to overwhelming English words.	10
I2 – acronyms and abbreviations	Acronyms and abbreviations are composed of the initial letters of each member of the expression in them. Abbreviations are mixed; there are regular and occasional ones. There are common abbreviations that are short parts of words or sets of words, and read as if words are spelled correctly. Other abbreviations are formed by merging the initial letter or letters of multi-member group called names and is usually read as written.	10
I3 – emoticon	Emoticons are signs, symbols. They are not just colon and parentheses; it is a sign of a good mood, and sometimes takes other meanings depending on	10

	the context in which it is used. Symbols are signs in which the relationship between signifiers are already learned.	
G1 – lower case graphemes	Contrary to the grammar rules, the use of lower case graphemes where it should be used upper case graphemes.	10
G2 – diacritics special signs	Part of the grapheme that change the sound of the grapheme. Those signs are omitted and often recorded by the standard rules of English language.	10
G3 – space	The omission of space where needed, after punctuation.	10
P1 – punctuation	Punctuation is used in a non standard way in order to compensate the auditive channel within the discussion.	10
P2 – uppercase graphemes	In written Croatian language there is standard use of uppercase in three particular situations. First is with the proper names, the second as the first letter in a sentence and finally in order to express politeness. Though, there are some exceptions. Uppercase within the whole word, sentence or text can be used for esthetic, advertising or propaganda reasons. It is used in order to emphasize the specific word and to plan and to add the prosodic elements to the written word.	10
P3 – prolongation of the graphemes	In written Croatian language there are 30 sounds each represented by single grapheme (except three sounds being represented by double graphemes *dž, lj* and *nj*). There's no such a thing as geminate (a double consonant such as *mm* and a word *communication*). It is used in order to add prosodic elements to written words. Prosody gives rhythm and melody to a word. It comprehends acoustic parameters such as accent, intonation, and melody.	10
O – Other	Use of tense considered to be obsolete – aorist. As far as the past tenses are concerned, the most frequent and the most dominant tense in contemporary Croatian is the Croatian *perfect* - *Vidjela sam te* (PERFECT – *to see*). Shortened form, *aorist* form would be *Vidjeh te.* (AORIST – *to see*).	10

3 The quantity of Netspeak standards in the P-S and S-S discussions

Analyzing the professor-student discussions within the Information and Communication Technologies course through 4 different generation of students which participated in more than three discussions professor-student and student-student in the academic year 2008/2009, 2009/2010, 2010/2011 and 2011/2012 the indicators of average use of Netspeak standards are obtained.

The sample of students by each academic year is shown in the Table 2.

Table 2. Number of students who participated in the discussion

Academic year	**∑ students on the course**	**∑ students participated in the discussion**	**∑ active students from sample**	**Active students / all students on the course (%)**	**Active students / students participated in discussion (%)**
1	2	3	4	4/2	4/3
2008/2009	295	134	51	17,29%	38,06%
2009/2010	341	110	51	14,96%	46,36%
2010/2011	244	103	46	18,85%	44,66%
2011/2012	182	74	27	14,84%	36,49%
∑	1062	421	175	16,48%	41,57%

Since the participation in the online discussions are not the mandatory element of the course Syllabus, 39,62% of students took part in the discussions through four years.

For the sample to be representative the authors analyze the discussions of students which took part in more than three topics – 41,75% of the whole sample. It is the 16,48% of all student enrolled in four years program. The biggest percentage of the active students involved in the discussions is in the academic year 2009/2010 (46,36%), and the lowest percentage of the active students involved in the discussions is in the academic year 2008/2009 (38,06%).

Based on the analyzed sample, the Table 3 shows arithmetic mean of the overall use of Netspeak standards in the discussion professor-student and student-student through all four academic year. Also, it shows the standard deviation and the variability of the arithmetic mean as an indicator of the representativeness of the sample (V).

The coefficient of variation shows the extent of variability in relation to arithmetic mean of the overall use of Netspeak standards in the discussion and it's calculated as the ratio of the standard deviation to the arithmetic mean.

If the results show that the coefficient of variation of the mean is less than 50%, the arithmetic mean of the sample can be accepted as representative.

Table 3. Indicators of the representative arithmetic mean of the sample

One-Sample Statistics				
	N	Mean	Std. Dev.	V
P-S 2008/09	51	32,25	10,05	31,15%
S-S 2008/09	51	34,09	10,43	30,61%
P-S 2009/10	51	32,59	10,54	32,35%
S-S 2009/10	51	35,00	13,06	37,31%
P-S 2010/11	46	28,98	10,58	36,51%
S-S 2010/11	46	33,25	13,25	39,85%
P-S 2011/12	27	29,95	10,12	33,77%
S-S 2011/12	27	35,83	13,06	36,44%
P-S 2008/09 -2011/12	175	31,13	10,37	33,32%
S-S 2008/09 -2011/12	175	34,40	12,33	35,83%

The results show that the value of arithmetic mean of the use of Netspeak standards through all four academic year for the professor-student and student-student discussions is about 30 and it is representative. This means that about 30% of students tend to use Netspeak in online discussion. By comparing the professor-student and student-student discussion, the result show that the use of Netspeak standards is less often in professor-student discussions.

Figure 2 shows the distribution by each Netspeak standard within the discussion P-S and S-S.

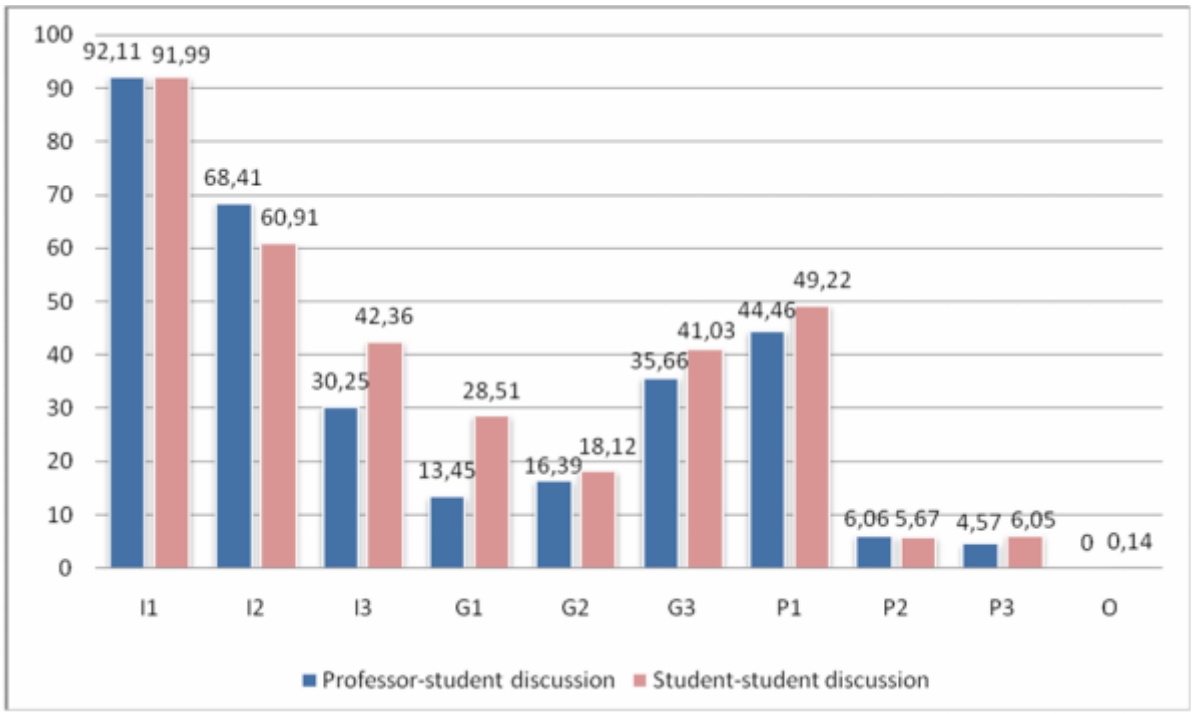

Fig. 2. Use of the Netspeak standards through all 4 different generation of students

Standard I1 – words in English language is the most used standard. 92,11% of students use it in the professor-student discussion and 91,99% of students use it in the student-student discussion. Thus high percentage of the use of words in English can be explained by the specificity of the ICT course dealing with new technologies and English terminology not yet translated into Croatian language. Moreover, the high percentage of students use the standard related to the use of abbreviations and acronyms (I2) in professor-student discussions (68,41%) and student-student discussions (60,91%). The difference of 8% is explained by the length of the professor-student discussion, they are longer. To verify this hypothesis the authors analyze the density of I2 standards by the number of characters. The density of I2 standards by the number of characters in the discussion P-S is 0,57% while the density of the I2 standards in the S-S discussion is 1,16% .

The use of emoticons (I3) are higher in the student-student discussions which is less formal (42,36%) than in the professor-student discussions (30,25%).

In professor-student discussions 13,45% of the students write posts using lower cases (G1), while this percentage is higher in the student-student discussion (28,51%). 16,39% of the students don't use space after the punctuation (G2) in professor-student discussions, while 18,12% do the same thing in student-student discussions. The omission of the diacritics (G3) is oftener in the student-student discussions (41,03%) and less often in professor-student discussions (35,66%).

Prosody standards, the nonstandard use of punctuation (P1) are also often used in discussions. 44,46% in the professor-student discussions and 49,22% in the student-student discussions. There is slight difference between the use of Prosody standards, the use of upper cases (P2) and the prolongation of the graphemes (P3) in professor-student and student-student discussions. Those standards are less used (less than 7%).

In the category Other within the analyzed discussions emerges the use of obsolete past tense called *aorist*. It appears only in student-student discussions. It other forms of communication such as social media, the category Other is expected to be more represented.

Figure 3 shows the quantity of the use of Netspeak standards by categories comparing professor-student discussions and student-student discussions through all 4 generation of students.

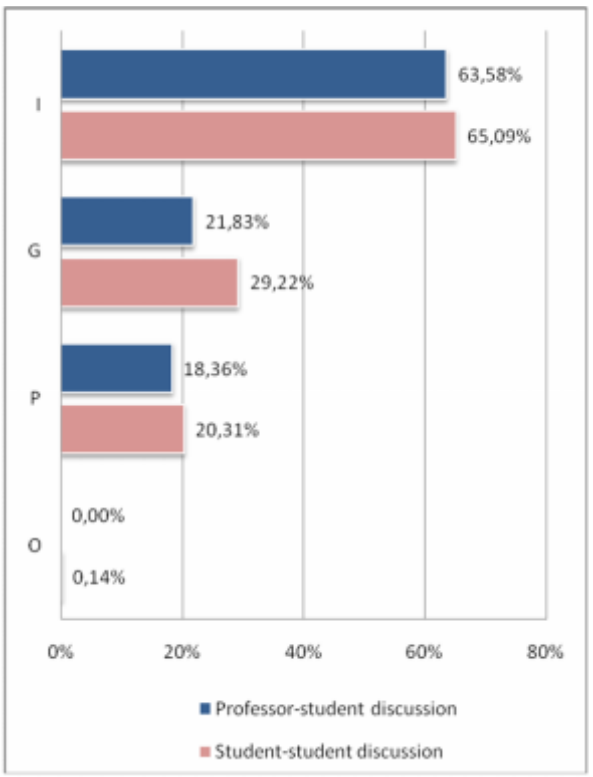

Fig. 3. Quantity of the use of Netspeak standards by categories comparing P-S and S-S discussion

In each category there is a slight higher quantity of Netspeak standards within the student-student discussion. The most used standards are those from the category I (ICT standards) with over sixty percent. The less used standards are those from the G (grammar and syntax) category, and P (prosody) category. The use of the Netspeak standards from G category shows the greater difference in average use comparing professor-student discussions and student-student discussions. 21,83% of students use Netspeak elements from the G category in professor-student discussion, and 29,22% of students use it in the student-student discussion. About twenty percent of students use the Netspeak standards from P category. The fourth category is present with negligible 0,14 percent in the student-student discussion.

3.1 Salutation at the beginning and the complementary closing at the end of post

Although the salutation is not one of the Netspeak standards it is interesting to analyze how students use the salutation at the beginning and the complementary closing at the end of the post of the P-S and S-S discussions (Figure 4).

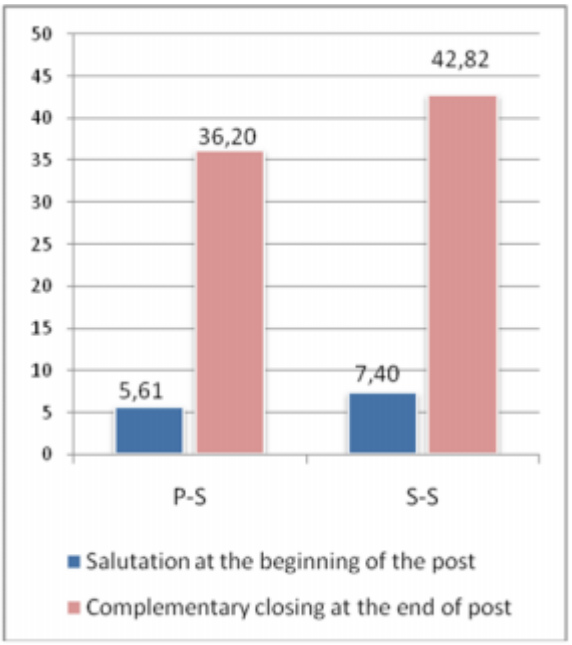

Fig. 4. Salutation at the beginning and the complementary closing at the end of post

Only 5,61% of students start with the salutation at the beginning of the post in the professor-students discussion, and 7,40% of students start with the salutation at the beginning of the post in the student-student discussion. More often, students write complementary closings at the end of the post: 36,20% of students in the professor-student discussions and 42,82% in the student-student discussions. However, most of the greeting at the end of the posts relates to emoticons and acronyms - even 75%.

4 Results on Statistical Research

The authors set four hypotheses on comparison of the Netspeak standards within the professor-student discussion and student-student discussion. The authors assume that the professor-student discussions are more formal than the student-student discussion.

1. Netspeak standards are more often used in S-S rather than in the P-S discussions.
2. Students using more often Netspeak standards in P-S discussions are using the Netspeak standards in S-S discussions.
3. Students using more often certain standards in P-S discussion are using the same standards in S-S discussions.
4. The density of Netspeak is higher in S-S discussions than in P-S discussions.

4.1 Hypothesis 1 – Netspeak standards are more often used in S-S than in P-S discussions

Table 4 show the use of Netspeak standards through four generation of students in professor-student discussion and in student-student discussion. Moreover, the table shows the results of standard deviation and coefficient of variation (V) showing the representativeness of the sample.

Table 4. Use of the Netspeak elements trough 4 different generation of students in professor-student and student-student discussion

A.y.		N	Mean	Std. dev.	V
2008/ 2009	P-S	51	32,25	10,05	31,15%
	S-S	51	34,09	10,43	30,61%
2009/ 2010	P-S	51	32,59	10,54	32,35%
	S-S	51	35,00	13,06	37,31%
2010/ 2011	P-S	46	28,98	10,58	36,51%
	S-S	46	33,25	13,25	39,85%
2011/ 2012	P-S	27	29,95	10,12	33,77%
	S-S	27	35,83	13,06	36,44%
2008/ 2009-2011/ 2012	P-S	175	31,13	10,37	33,32%
	S-S	175	34,40	12,33	35,83%

The results show the slightly higher value of arithmetic mean of the use of Netspeak standards through all four academic year for the student-student discussions. Although, the both discussions are used within the e-learning system in education the author assume that the discussions between students is less formal than the discussions that are initiated by the professors. The average value of the use of Netspeak standards in professor-student discussions through all four academic years is 31,13 while in the student-student discussions the average value is 34,40.

The coefficient of variations for all samples through academic year is less than 50%, which confirm that the arithmetic mean is representative enough.

Based on these results the hypothesis 1 can be accepted.

4.2 Hypothesis 2 – Students using the Netspeak standards in P-S discussions are using the Netspeak standards in S-S discussions

The authors assume that the students using Netspeak standards in professor-students discussions are using the standards in the discussions among students as well. To test the hypothesis the „paired sample correlation“ test is used with the sample of 175 students.

Table 5 shows the significance ratio and the value of Pearson Correlation coefficient to conclude if there is a correlation in using the Netspeak standards or not.

Table 5. Correlation between the use of each Netspeak standards through all four academic year

Paired Samples Correlations

			N	Correlation	Sig.
Pair 1	**I1**	P-S & S-S	175	0,2315	0,0021**
Pair 2	**I2**	P-S & S-S	175	0,2634	0,0004**
Pair 3	**I3**	P-S & S-S	175	0,4597	0,0000**
Pair 4	**G1**	P-S & S-S	175	0,6385	0,0000**
Pair 5	**G2**	P-S & S-S	175	0,7649	0,0000**
Pair 6	**G3**	P-S & S-S	175	0,8159	0,0000**
Pair 7	**P1**	P-S & S-S	175	0,6079	0,0000**
Pair 8	**P2**	P-S & S-S	175	0,3697	0,0000**
Pair 9	**P3**	P-S & S-S	175	0,1366	0,0715
Pair 10	**O**	P-S & S-S	175	.	.

**. Correlation is significant at the 0,01 level (2-tailed).

According to the results there can be noticed the correlation between the use of all Netspeak standards in professor-student discussion and student-student discussion, except the standard P3.

Correlations for all other standards are positive and relevant at the 0,01 level. The results show weak correlation in the use of I1, I2, I3 and P2. Good correlation is between standards G1 and P1 and excellent one between the use of G2 and G3 standards.

In the analyzed sample the standard Other is used rarely, thus the correlation is not possible to be calculated.

Table 6 shows the correlation between the average use of the Netspeak standards in professor-student discussions and student-student discussions analyzed by each academic year.

Table 6. The correlation between the uses of Netspeak standards by each academic year

Paired Samples Correlations

			N	Corr.	Sig.
Pair 1	2008/ 2009	P-S & S-S	51	0,6911	0,0000**
Pair 2	2009/ 2010	P-S & S-S	51	0,7162	0,0000**
Pair 3	2010/ 2011	P-S & S-S	46	0,5344	0,0001**
Pair 4	2011/ 2012	P-S & S-S	27	0,6314	0,0004**
Pair 5	2008/ 2009 – 2011/ 2012	P-S & S-S	175	0,6376	0,0000**

**. Correlation is significant at the 0,01 level (2-tailed).

It is obvious that the correlations are statistically very significant. The value of the correlations shows good and excellent correlation. It proves that the students which use less or more Netspeak standards in the professor-student discussions are using the same ratio in the discussions among students.

Based on the results the tested hypothesis that there is the correlation between the use of professor-student discussions and the discussions among students can be accepted.

4.3 Hypothesis 3 - Students using more often certain category of the standards in P-S discussion are using the same standards in S-S discussions

The authors assume that the students using more often certain category of the standards in the professor-student discussions are using the same category of standards in the discussions among students.

To test the hypothesis 3 the authors use „paired sample correlation" statistics. The obtained results are shown in the Table 7.

Table 7. Correlation between the use of Netspeak standards by each category of standards.

Paired Samples Correlations					
			N	Corr.	Sig.
Pair 1	**I** 2008/ 09	P-S &S-S	51	0,6270	0,0000**
Pair 2	**G** 2008/ 09	P-S &S-S	51	0,7140	0,0000**
Pair 3	**P** 2008/09	P-S &S-S	51	0,4250	0,0020**
Pair 4	**I** 2009/10	P-S &S-S	51	0,4900	0,0000**
Pair 5	**G** 2009/10	P-S& S-S	51	0,8000	0,0000**
Pair 6	**P** 2009/10	P-S &S-S	51	0,6230	0,0000**
Pair 7	**I** 2010/11	P-S &S-S	46	0,2450	0,1010**
Pair 8	**G** 2010/11	P-S &S-S	46	0,6610	0,0000**
Pair 9	**P** 2010/11	P-S &S-S	46	0,5460	0,0000**
Pair 10	**I** 2011/12	P-S &S-S	27	0,4440	0,0200**
Pair 11	**G** 2011/12	P-S &S-S	27	0,8680	0,0000**
Pair 12	**P** 2011/12	P-S &S-S	27	0,4920	0,0090**
Pair 13	**I** 2008/09 -2011/12	P-S &S-S	175	0,4690	0,0000**
Pair 14	**G** 2008/09 -2011/12	P-S &S-S	175	0,7490	0,0000**
Pair 15	**P** 2008/09 -2011/12	P-S &S-S	175	0,5580	0,0000**
**. Correlation is significant at the 0,01 level (2-tailed).					

From the table is obvious that the results are statistically significant, and that there is positive correlation in using the category of Netspeak standards in every academic years.

The results from the sample of the students through all four academic years show the highest correlation within the category G (grammar and syntax), which is of 0,7490, than the category P (Prosody standards, which is 0,5580), a little bit weaker correlation is between standards within the category I (ICT).

If we look through each academic year, it is evident that almost all values of correlation are statistically significant within the all group of standards. In the category of ICT standards, only in the academic year 2010/2011 the correlation was not significant. Other correlations are good and the values are between 0,440 and 0,6270. If we look at the values of correlation of grammar and syntax category through the all four academic year we also can see the higher values of correlation (between 0,6610 and 0.8680.) Within the prosody standards, we can also see a good correlation. The values of correlation are between 0,4250 and 0,6230.

Based on the results, the tested hypothesis that the students using more often certain category of the standards in the professor-student discussions are using the same category of standards in the discussions among student, can be accepted.

4.4 Hypothesis 4 – The density of Netspeak is higher in S-S discussions than in P-S discussions

If the density of Netspeak standards is measured from the number of characters in the post the hypothesis is that the density of Netspeak elements is higher between the student's discussions than in professor-student discussions. In order to test that hypothesis the larger discussions are analyzed; those in larger number of posts as well as in the larger number of participants during the four academic year. After analyzing the discussions the results about the average length and average the number of the posts (in characters that the Netspeak standards) is obtained. It is important to highlight that in the number of characters, the space is included since the standard G3 is about the omission of spaces after punctuation.

Table 8 shows the results of the analysis of the density of Netspeak standards in professor-student discussions and student-student discussion through all four academic year.

Table 8. Analysis of the density of Netspeak standards in professor-student discussions and student-student discussion through all four academic year

academic year	avg. num. of character	avg. num. of Netspeak characters	density of Netspeak	N	% students	avg. num. of character	avg. num. of Netspeak characters	density of Netspeak	N	% students
1	2	3	4 (3/2)	5	6	7	8	9	10	11
2008/09	1158	64	5,87%	50	42%	573	56	10,95%	44	57%
2009/10	664	38	6,10%	38	41%	302	34	18,62%	31	40%
2010/11	723	40	5,73%	42	51%	360	35	10,32%	34	46%
2011/12	786	45	5,95%	36	56%	549	52	8,71%	31	72%
∑	854	48	5,91%	166	46%	456	45	12,02%	140	52%

The results are obtained based on the sample of 46% of all enrolled students that have been active participants in the professor-student discussions and 52% of students participating in student-student discussion.

The overall results show that the density of Netspeak standards in the professor-student discussions is 5,91%, while the density of Netspeak standards in the student-student discussion is 12%. Based on the results, the hypothesis that the density of the Netspeak standards in the discussions between students is larger than the density of the Netspeak standards in the discussions between the professors and students can be accepted.

5 Conclusion

Netspeak, new language form created due to the rapid development and daily use of new technologies is a common phenomenon that occurs in informal as well as in formal communication. Analyzing the online discussions as a basic component of e-learning system, it is evident that Netspeak is used in discussion between professor and student and in the student-student discussion.

The quantity of Netspeak elements can be identified through 10 standards developed by the authors and divided into 4 groups - ICT standards, grammar and syntax, prosody standards and the category Other. Based on the analysis, it is obvious that the most used standards are in the ICT group, then the standards of grammar and syntax groups, then prosody standards and only rarely can be found elements of the group Other. In this paper, based on the analysis, the authors set and confirm four hypotheses. The first hypotheses confirm that Netspeak standards are used in more formal discussions, the professor-student discussion. Average 31,13% of the students in professor-student discussion use Netspeak while 34,40% of the students use it in the student-student discussion. The second hypothesis assumes that students using the Netspeak standards in professor-student discussions are also using the Netspeak standards in student-student discussions. The analysis shows that the correlation between the use of each Netspeak standards through all four academic year are positive and relevant at the 0,01 level, except the standard P3. Looking at the correlation between the use of Netspeak standards for all academic year it can be said that this value shows a good correlation and it is 0,6376.

The analysis confirmed the third hypothesis that the students who are using certain categories of standards in the professor-student discussion are using the same standards in student-student discussions. The results show that there is a good correlation in using all groups of the standards. Looking at the correlation across all of the academic year, it is statistically significant and amounts to 0,5580.

The fourth hypothesis consider the density of Netspeak elements in the discussion. It states that the density is greater in the student-student discussion. The results show that in the professor-student discussion the Netspeak density is of 5,92%, and in the student-student discussion the density is of 12%, which also confirms the hypothesis.

All the above speaks in favor of erasing boundaries not only between the written and spoken language but also between formal and informal discourse. Netspeak is an overwhelming form, drastically changing the world of the spoken and written word.

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